

REMARKS

In the Office Action,¹ the Examiner :

- (a) rejected claims 1-5, 8-14, 16, and 18-19 under 35 U.S.C. § 102(e) as being unpatentable over Hafeez et al. (U.S. Patent No. 6,920,191) ("Hafeez"); and
- (b) rejected claims 6-7, 15, 17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Hafeez in view of Shattil (U.S. Patent Publication No. 2002/0034191) ("Shattil").

Applicants amend claims 1, 5-9, 14-18, and 20 to improve form and clarity.

Applicants incorporate the features of dependent claim 4 into independent claim 1, and incorporate the features of dependent claim 13 into independent claims 9 and 18. In addition, Applicants cancel claims 4 and 13 without prejudice to, or disclaimer of, their subject matter. Support for the claim amendment may also be found in Applicants' specification at, for example, paragraphs [026]-[030]. Upon entry of this Amendment, claims 1-3, 5-12, and 14-20 will remain pending in this application. Applicants respectfully traverse the rejections for at least the following reasons.

Rejection of Claims 1-5, 8-14, 16, and 18-19 under 35 U.S.C. § 102(e):

Applicants traverse the rejection of claims 1-5, 8-14, 16, and 18-19 under 35 U.S.C. § 102(e) as being anticipated by Hafeez. Hafeez does not anticipate these claims.

In order to properly establish anticipation under 35 U.S.C. § 102, the Federal Circuit has held that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

¹ The Office Action may contain statements characterizing the related art, case law, and claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). See also M.P.E.P. § 2131.

Hafeez does not teach each and every element recited in the claims, despite the Examiner's allegations. For example, Hafeez does not teach "[a] signal processing method comprising: ... extracting an approximation of the pulse shaping distortion from the first signal to obtain a second signal; and processing the second signal to obtain a user signal; wherein extracting comprises applying an equalization between the second signal and a third signal corresponding to the first signal, the third signal including no pulse shaping distortion and consisting only of binary code division multiple access (CDMA) codes," as recited in claim 1 (emphasis added).

The Examiner alleged that "[r]egarding to claims 4 and 13, Hafeez et al disclose wherein extracting the approximation of the pulse shaping distortion from the first signal comprises applying an equation between the second signal and an original signal before pulse shaping (LMS Col 7, L 16-20)" (Office Action, p. 7). However, this is not correct.

Hafeez teaches "a system for estimating the pulse-shape response in a TDMA (time division multiple access) wireless mobile terminal" (col. 2, lines 40-42, emphasis added), and discloses that "[t]he pulse-shape estimator receives a training signal that has passed through the pulse-shaping filters and known training symbols. Based on the actual received signal containing the training symbols and the expected received signal,

the pulse-shape estimator estimates the impulse response of the pulse-shaping filters” (Abstract). Hafeez further discloses that “[b]ased on equation (13), the pulse-shape estimate \hat{p}_{m+1} for slot m+1 may be obtained using the LMS (least mean squares) algorithm as $\hat{p}_{m+1} = \hat{p}_m + \beta \hat{G}_m^H A^H \varepsilon_m, \dots$ ” (col. 7, lines 16-20).

However, calculating a pulse-shape estimate in a TDMA wireless mobile terminal, as taught by Hafeez, does not constitute the claimed “applying an equalization between [a] second signal and a third signal corresponding to [a] first signal, the third signal including no pulse shaping distortion and consisting only of binary code division multiple access (CDMA) codes” (emphasis added). For example, the pulse-shape estimate of Hafeez does not include “no pulse-shaping distortion,” as recited in claim 1.

In addition, Hafeez does not teach “extracting an approximation of the pulse shaping distortion from the first signal to obtain a second signal,” as recited in claim 1 (emphasis added). The Examiner alleged that “Examiner believes that Hafeez teaches such limitation as shown in 316 of Fig. 3 and Col 9, L 19-25” (Office Action, p. 3).

However, this is not correct.

Hafeez teaches “[c]ompensation filter 316 may be designed to zero-force ISI (inter-symbol interference) caused by pulse-shape distortion by selecting a given sampled Nyquist pulse-shape as the target response. The target response in the case of a symbol-rate pulse-shape response is an impulse function. Symbol-rate pulse-shape compensation eliminates ISI and also whitens the noise if the transmit filter is Nyquist” (col. 9, lines 19-25, emphasis added). However, zero-forcing or eliminating ISI, as taught by Hafeez, does not constitute the claimed “extracting an approximation of the pulse shaping distortion from the first signal to obtain a second signal” (emphasis

added). For this additional reason, Hafeez does not teach each and every element recited in claim 1.

With respect to claim 9, similar to the discussion above in connection with claim 1, Hafeez does not teach “[a] signal processing method comprising: … extracting the an approximation of the non-channel distortion from the first signal to obtain a second signal that includes a time-varying channel function; and processing the second signal to obtain a user signal; wherein extracting comprises applying an equalization between the second signal and a third signal corresponding to the first signal, the third signal including no non-channel distortion and consisting only of binary code division multiple access (CDMA) codes,” as recited in claim 9 (emphasis added). Therefore Hafeez fails to teach each and every element recited in claim 9.

With respect to claim 18, similar to the discussion above in connection with claim 1, Hafeez does not teach “[a] signal processing system, comprising: … a signal-extracting device, … wherein extracting comprises applying an equalization between the second signal and a third signal corresponding to the first signal, the third signal including no non-channel distortion and consisting only of binary code division multiple access (CDMA) codes,” as recited in claim 18 (emphasis added). Therefore Hafeez fails to teach each and every element recited in claim 18.

In view of the foregoing, Hafeez does not anticipate independent claims 1, 9, and 18. Independent claims 1, 9, and 18 are allowable, and dependent claims 2, 3, 5, 8, 10-12, 14, 16, and 19 are also allowable at least by virtue of their dependence from one of allowable base claims 1, 9, and 18. The 35 U.S.C. § 102(e) rejection is therefore improper and should be withdrawn.

Rejection of Claims 6-7, 15, 17, and 20 under 35 U.S.C. § 103(a):

Applicants traverse the rejection of claims 6-7, 15, 17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Hafeez in view of Shattil. No *prima facie* case of obviousness has been established.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See *M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007)*. “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” *M.P.E.P. § 2145*. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. *M.P.E.P. § 2143.01(III), internal citation omitted*. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” *M.P.E.P. § 2141.02(I)*, internal citations omitted (emphasis in original).

“[T]he framework for objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q 459 (1966).... The factual inquiries ... [include determining the scope and content of the prior art and] ... [a]scertaining the differences between the claimed invention and the prior art.” *M.P.E.P. § 2141(II)*. “Office personnel must explain why the difference(s)

between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art." *M.P.E.P. § 2141(III)*.

Here, a *prima facie* case of obviousness has not been established because the Examiner has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the claimed invention and the prior art. Accordingly, the Examiner has failed to clearly articulate a reason why the prior art would have rendered the claimed invention obvious to one of ordinary skill in the art.

Claims 6 and 7 depend upon base claim 1. As explained above, Hafeez does not teach "[a] signal processing method comprising: ... extracting an approximation of the pulse shaping distortion from the first signal to obtain a second signal; and processing the second signal to obtain a user signal; wherein extracting comprises applying an equalization between the second signal and a third signal corresponding to the first signal, the third signal including no pulse shaping distortion and consisting only of binary code division multiple access (CDMA) codes," as recited in claim 1 (emphasis added), and required by dependent claims 6 and 7. Shattil fails to cure Hafeez's deficiencies.

The Examiner alleged that "Shattil discloses a wireless communication system comprise[s] an approximate solution that is obtained from a first-order perturbation calculation ([0678])" (Office Action, p.8). However, whether this allegation is correct or not, neither Hafeez nor Shattil, nor any combination thereof, teaches "applying an equalization between [a] second signal and a third signal corresponding to [a] first signal, the third signal including no pulse shaping distortion and consisting only of binary

code division multiple access (CDMA) codes," as recited in base claim 1 and required by dependent claims 6 and 7 (emphasis added).

In view of the shortcomings of the prior art and the errors in analysis of the prior art set forth in the Office Action, the Examiner has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the claimed invention and the prior art. Furthermore, one of ordinary skill in the art of wireless communications would recognize that CDMA and TDMA are different technologies requiring entirely different techniques, and would not be motivated to apply TDMA techniques in a CDMA environment. Thus, the Examiner has failed to clearly articulate a reason why the prior art would have rendered the claimed invention obvious to one of ordinary skill in the art. Accordingly, no *prima facie* case of obviousness has been established. Independent claim 1 is therefore allowable, and dependent claims 6 and 7 are also allowable at least by virtue of their dependence from base claim 1. The 35 U.S.C. § 103(a) rejection of claims 6 and 7 is therefore improper and should be withdrawn.

Similarly, independent claims 9 and 18 are allowable, and dependent claims 15, 17, and 20 are also allowable at least by virtue of their dependence from one of base claims 9 and 18. The 35 U.S.C. § 103(a) rejection of claims 15, 17, and 20 is therefore improper and should be withdrawn.

Conclusion:

In view of the foregoing, Applicants request reconsideration of the application and withdrawal of the rejection. Pending claims 1-3, 5-12, and 14-20 are in condition for allowance, and Applicants request a favorable action.

If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Richard V. Burgujian
Reg. No. 31,744
(571) 203-2790